

IN THE CLAIMS

Please cancel claims 1-46 without prejudice.

Please add claims 84-87.

1-46. (canceled)

47. (original) A method for fabricating a microelectromechanical apparatus comprising:

forming first trenches on a first side of a substrate;

forming a layer of dielectric material on the first side of the substrate and

filling the first trenches with the dielectric material to provide electrical isolation;

patternning a masking layer on a second side of the substrate that is opposite to
the first side of the substrate;

forming vias on the first side of the substrate;

metallizing the first side of the substrate;

forming second trenches on the first side of the substrate to define structures;

deeply etching the second side of the substrate to form blades;

etching to release the structures.

48. (currently amended) The method of claim 47, further comprising attaching a
protective structure to the second side of the substrate prior to etching ~~through the~~
~~second trenches~~ to release the structures.

49. (original) The method of claim 47, wherein the substrate comprises a silicon wafer.

50. (original) The method of claim 47, further comprising attaching a protective
lid to the first side of the substrate.

51. (original) The method of claim 47, wherein the dielectric material is silicon dioxide.

52. (original) The method of claim 47, further comprising depositing a second metal layer on the first side of the substrate after metallizing the first side of the substrate in order to form a reflective surface.

53. (original) The method of claim 47, further comprising forming a passivation layer on the first side of the substrate after metallizing the first side of the substrate.

54. (original) The method of claim 48, wherein the protective structure comprises a base wafer.

55. (original) The method of claim 50, wherein the protective lid comprises glass.

56. (original) A method for fabricating a microelectromechanical apparatus, comprising:

 patterning a masking layer on a second side of a substrate having a second side that is opposite to a first side of the substrate;

 deeply etching the second side of the substrate to form blades;

 attaching a protective structure to the second side of the substrate;

 forming first trenches on the first side of the substrate;

 forming a layer of dielectric material on the first side of the substrate and filling the first trenches with the dielectric material to provide electrical isolation;

 forming vias on the first side of the substrate;

 metallizing the first side of the substrate;

 forming second trenches on the first side of the substrate to define structures;

 etching to release the structures.

57. (original) The method of claim 56, wherein the substrate comprises a silicon wafer.

58. (original) The method of claim 56, further comprising attaching a protective lid to the first side of the substrate.

59. (original) The method of claim 56, further comprising thinning the first side of the substrate prior to forming the first trenches.

60. (original) The method of claim 56, wherein a side of the protective structure facing the second side of the substrate includes a recess.

61. (original) The method of claim 56, wherein the dielectric material is silicon dioxide.

62. (original) The method of claim 56, further comprising depositing a second metal layer on the first side of the substrate after metallizing the first side of the substrate in order to form a reflective surface.

63. (original) The method of claim 56, further comprising forming a passivation layer on the first side of the substrate after metallizing the first side of the substrate.

64. (original) The method of claim 56, wherein the protective structure comprises a base wafer, wherein attaching the protective structure to the second side of the substrate comprises fusion bonding the base wafer to the second side of the substrate.

65. (currently amended) The method of claim 56⁵⁸, wherein the protective lid comprises glass.

66. (original) A method for fabricating a microelectromechanical apparatus comprising:
forming a layer of dielectric material on a first side of a silicon-on-insulator (SOI) substrate;

patterning a masking layer on a second side of the SOI substrate that is opposite to the first side of the SOI substrate;

forming vias on the first side of the SOI substrate that extend through a buried oxide layer of the SOI substrate;

metallizing the first side of the SOI substrate;

forming trenches on the first side of the SOI substrate to define structures;

forming a passivation layer on the first side of the substrate on metallization of the first side of the SOI substrate and on sidewalls of the vias and trenches of the first side of the SOI substrate;

deeply etching the second side of the SOI substrate to form blades that reside beneath the respective vias;

etching to release the structures.

67. (currently amended) The method of claim 66, further comprising attaching a protective structure to the second side of the SOI substrate prior to etching ~~through the trenches to release the structures~~.

68. (original) The method of claim 66, wherein the SOI substrate comprises an SOI wafer.

69. (original) The method of claim 66, further comprising attaching a protective lid to the first side of the SOI substrate.

70. (original) The method of claim 66, wherein the dielectric material is silicon dioxide.

71. (original) The method of claim 66, further comprising depositing a second metal layer on the first side of the SOI substrate after metallizing the first side of the SOI substrate in order to form a reflective surface.

72. (original) The method of claim 66, wherein deeply etching the second side of the substrate to form blades comprises etching to the buried oxide layer of the SOI substrate.

73. (original) The method of claim 67, wherein the protective structure comprises a base wafer.

74. (original) The method of claim 69, wherein the protective lid comprises glass.

75. (original) A method for fabricating a microelectromechanical apparatus, comprising:

 patterning a masking layer on a second side of the substrate that is opposite to a first side of the substrate;

 attaching spacer substrate to the second side of the substrate;

 forming first trenches on the first side of the substrate;

 forming a layer of dielectric material on the first side of the substrate and filling the first trenches with the dielectric material to provide electrical isolation;

 forming vias on the first side of the substrate;

 metallizing the first side of the substrate;

 forming second trenches on the first side of the substrate to define structures;

 etching an opening through the spacer substrate to expose the masking layer on the second side of the substrate;

 deeply etching the second side of the substrate to form blades;

 etching to release the structures.

76. (currently amended) The method of claim 75, further comprising attaching a base substrate to the spacer substrate prior to etching ~~through the second trench to release the structures.~~

77. (original) The method of claim 75, wherein the substrate comprises a silicon wafer.

78. (original) The method of claim 75, further comprising attaching a protective lid to the first side of the substrate.

79. (original) The method of claim 75, wherein the dielectric material is silicon dioxide.

80. (original) The method of claim 75, further comprising depositing a second metal layer on the first side of the substrate after metallizing the first side of the substrate in order to form a reflective surface.

81. (original) The method of claim 75, further comprising forming a passivation layer on the first side of the substrate after metallizing the first side of the substrate.

82. (original) The method of claim 76, wherein the spacer substrate comprises a spacer wafer and the base substrate comprises a base wafer.

83. (original) The method of claim 78, wherein the protective lid comprises glass.

84. (new) A method for fabricating a microelectromechanical apparatus, comprising the steps of:

forming first trenches on a first side of a substrate;

forming a layer of dielectric material on the first side of the substrate and filling the first trenches with a dielectric material to provide electrical isolation;

patterning a masking layer on a second side of the substrate that is opposite to the first side of the substrate;

forming vias on the first side of the substrate;

metallizing the first side of the substrate;

depositing a second metal layer on the first side of the substrate in order to form a reflective surface;

forming second trenches on the first side of the substrate to define structures;

deeply etching the second side of the substrate to form blades;

attaching a base wafer to the second side of the substrate;

etching through the second trenches to release the structures; and

attaching a protective lid of transparent material to the first side of the substrate.

85. (new) A method for fabricating a microelectromechanical apparatus, comprising the steps of:

patterning a masking layer on a second side of a substrate, wherein the second side of the substrate is opposite to a first side of the substrate;

deeply etching the second side of the substrate to form blades;

fusion bonding a protective base wafer with a recess to the second side of the substrate;

thinning the first side of the substrate;

forming first trenches on the first side of the substrate;

forming a layer of dielectric material on the first side of the substrate and filling the first trenches with the dielectric material to provide electrical isolation;

forming vias on the first side of the substrate;

metallizing the first side of the substrate;

depositing a second metal layer on the first side of the substrate in order to form a reflective surface;

forming second trenches on the first side of the substrate to define structures; etching through the second trenches to release the structures; and attaching a protective lid of transparent material to the first side of the substrate.

86. (new) A method for fabricating a microelectromechanical apparatus, comprising the steps of:

forming a layer of dielectric material on a first side of a silicon-on-insulator (SOI) substrate;

patterning a masking layer on a second side of the SOI substrate that is opposite to the first side of the SOI substrate;

forming vias on the first side of the SOI substrate that extend through a buried oxide layer of the SOI substrate;

metallizing the first side of the SOI substrate;

depositing a second metal layer on the first side of the SOI substrate in order to form a reflective surface;

forming trenches on the first side of the SOI substrate to define structures;

etching to the buried oxide layer of the SOI substrate to form blades that reside beneath the respective vias;

attaching a protective structure to the second side of the SOI substrate;

etching through the trenches to release the structures; and

attaching a transparent protective lid to the first side of the SOI substrate.

87. (new) A method for fabricating a microelectromechanical apparatus, comprising the steps of:

pattern a masking layer on a second side of the substrate that is opposite to a first side of the substrate;

attaching a spacer substrate to the second side of the substrate;

forming first trenches on the first side of the substrate;

forming a layer of dielectric material on the first side of the substrate and filling the first trenches with the dielectric material to provide electrical isolation;

forming vias on the first side of the substrate;

metallizing the first side of the substrate;

depositing a second metal layer on the first side of the substrate in order to form a reflective surface;

forming second trenches on the first side of the substrate to define structures;

etching an opening through the spacer substrate to expose the masking layer on the second side of the substrate;

deeply etching the second side of the substrate to form blades;

etching through the second trenches to release the structures; and

attaching a protective lid to the first side of the substrate.